

### ABSTRACT OF THE DISCLOSURE

A memory device adapted to a chalcogenide phase-change memory is disclosed. The memory device comprises a top electrode, a bottom electrode, and a phase-change thin film between the top electrode and the bottom electrode. The phase-change thin film is a chalcogenide (Ge-Sb-Te) alloy doped with Tin (Sn) therein. Tin (Sn) doped in the chalcogenide (Ge-Sb-Te) alloy can enhance the crystallization rate of the phase-change thin film for improving the operation speed of the memory.